

Trip Report of R. M. Scott

August 7 to August 29, 1959

At the time of the planning of this trip, several specific purposes were established. These included:

1. Make an examination of the elliptical mirrors of each B Configuration and decide as to whether each needed cleaning or return for recoating. As a secondary point, the cleaning procedure was to be examined and, any suggestions as to changes, discussed with the field personnel.
2. All Hatch windows were to be examined as to surface condition. A recommendation was desired to so use windows in stock as replacements to make the hatches most satisfactory.
3. The general state of maintenance and condition of configurations and trackers was to be observed and discussed.
4. The condition of 70mm processing equipment and operational problems were to be observed and discussed.
5. FAK requirements for all equipment was to be the subject of discussion with field personnel.

The trip was made almost exactly as scheduled with but one problem arising from the travel arrangements. Fortunately, an error in take-off time was not serious as another flight was soon available. The staffs of the various areas were cordial and very helpful in their efforts to provide accommodations and in making it possible to accomplish our objectives.

B Mirrors

The condition of the various B camera mirrors was found to be quite good on the whole. One camera at Detachment C had a mirror in quite poor shape, however, and it was recommended that this mirror be replaced with a new one as soon as possible. Such a new one would be soon available and, thus, an attempt was made to clean the one in the camera. It was found that hard rubbing with solvent did remove the discoloration, but scratched the coating rather badly. By subsequent checking at Detachment B we learned that it was the practice at that location to clean the mirror surface after each flight. This prevented the deposit from building up and hardening to the point where it became very difficult to remove. Soap and warm water, carefully applied, seemed to do the job satisfactorily provided the cleaning was done after each mission. It was suggested that when the worst B mirror was replaced and returned for recoating, some effort be spent to discover a solvent for the deposit that could be made available in the field (some solvents are not air transportable).

Added note: When the mirror was returned, some effort was made to discover a solvent. In the short time available, no truly satisfactory solvent was discovered for the hardened deposit. It is, therefore, recommended that the mirror be carefully washed very soon after each mission, as has been the practice at Detachment B.

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Hatch Windows

All hatch windows at both detachments were examined so that their condition with regard to coating and scratches could be recorded. Although nearly all windows had some blemishes or defects, the great majority were so minor as to be quite satisfactory for continued use. A few were quite devoid of the antireflection coating or the coating that did remain was quite scratched by frequent cleaning. This defect appears, in the inspection light, to be much worse than its true effect on optical performance of the system. In a few cases the windows did have long or deep scratches. Some of these were on the outside and could have come from stones, but some were on the inside and could only have been caused by careless cleaning or dropped tools.

Added note: Subsequent to our return, a study has been made of the windows available in stock. A selection has been recommended for the replacement of the windows in the worst condition.

Maintenance and Condition of Equipment

In general, I felt that maintenance and condition were both quite good. The malfunction record was not particularly good for either configuration or tracker, but it was improving and considerable effort was going into making it better. We saw an effect on the maintenance operation at Detachment C which should be kept in mind by mission planners and avoided if possible. Detachment C was in a condition of alert, which had been in effect for quite a long period. The group was becoming increasingly weary over the condition of their equipment because they did not feel it was wise to really dig into various components. Such inspection and preventive maintenance requires some disassembly and, of necessity, removing equipment from the ready list. This was not done during the alert period. There was, thus, little activity but rather worried waiting.

A problem with trackers was being faced with some activity, however. It was observed that most of the malfunctions in these cameras were occurring when they were flown in weather hatches. In these hatches the cameras run under conditions of considerably lower temperatures than are encountered on photo missions. Components and subassemblies were being tested in the deep freeze cabinet and various lubrication problems were being overcome. The subsequent record has shown considerable improvement. The weather hatch trouble was not in evidence at Detachment B and so we concluded that the effect was due to a combination of humidity on the ground and low temperature in the hatch.

I carried with me the latest check lists for inspection and preflight procedures. These were checked with the lists developed in the field and various changes noted. While it would be to some advantage to have all lists identical, local procedures and experience indicated the desirability of small variations between the procedures used at the two detachments. These procedures were formalized during the visit.

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Several specific items were brought to my attention at Detachment B as affecting maintenance on trackers.

1. Present load requires services of a third man.
 - a. Cleaning hatch windows.
 - b. Service on sextant after leaves.
 - c. Coverage during R&R
 - d. Desire to help cover processor operation.
 - e. Heavy use of tracker on other than photo missions.
2. A problem of shipping of brake bands from supply. These are repacked some where and the loops are cracked. This will be taken care of from the P-E end and repackaging will not be necessary.
3. Tracker maintenance space at Detachment B severely limited and rather dusty.

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The general problem of exposure of tracker material was brought to my attention. The programmer was not being used because its minimum slit width cam did not provide a small enough slit width for use with the yellow filter. It was suggested that the red filter be used more often and a test flight was run during the visit. To my eye, the results with the red filter looked as though there was more contrast and a bit more resolution than the normal yellow filter results. I made the recommendation at the time, and I repeat it here, that some finer grained, slower film be obtained for the trackers and flown to ascertain if more resolution can be realized during the period and in regions of high illumination. Type 221 or 182, preferably the latter with three to four times the exposure, should give appreciably better results than are now obtained.

Processors

We looked at the processors at both locations. They seemed to be in satisfactory operating condition. The one at Detachment B was in heavy use while that at C was dormant because of the stand-by status of the operation. Care was being exercised, however, to keep it ⁱⁿ ready condition.

Projection viewers for the 70mm material were set up at both detachments. It was interesting and instructive to me to see the machines and learn of the photo interpreters' reactions to them. The machine at C was little used because the PI didn't like it. It did need cleaning, mirrors in particular, and was in poor adjustment. One mirror vibrated badly with the blower running and this made the projected image flicker, leading to discomfort for the observer.

At B, on the other hand, the PI liked the device and used it a great deal. He had made a number of little changes which made it more to his liking. Such things as a more powerful lamp, even a larger one yet, would be desirable if the voltage control and cooling are up to it, a larger lever for the frame clamp, damping and adjustment of the mirrors, etc., had been added. We talked about

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the fact that the scale mask, the only one available, was not quite correct and that a significant improvement would result from scales engraved directly on the lower glass. These should be easily interchangeable for different scales and, thus, a slight change in the mount is required.

FAK Requirements

The requirements and available equipment for FAK and deployed operations were discussed and, although the details of the arrangements were a bit different at the two locations, both seemed to be well worked out and in satisfactory condition.

RF Noise

The various modifications to reduce radio frequency interference had not been installed at Detachment C and those at B did not solve the problem. Noise clean-up in the bird had resulted in the information that noise from the tracker was limiting the coverage of System 4. Cooperative activity was going on with the RW people, but it was the general feeling that the sort of fixes to the tracker available in the field would fall far short of a truly satisfactory solution. Upon my return I have looked into this problem at the factory. Considerable effort is being applied at FOG by P-E service people to find a truly satisfactory solution to this problem. At the time of this writing a solution has been found (which makes the camera quieter than a clean A/C) but considerable rework of the camera is required to provide the necessary shielding. It does not seem practical to make such modification a field kit but rather an item to be installed during a factory turn-around if the expense were justified.

Miscellaneous Items

A number of items were brought to my attention during the trip, particularly at Detachment B. Most of these were with regard to the general conditions of the base. Beside the normal complaints about the food and living conditions, specific points concerning space and manpower, already mentioned, and transportation were voiced. While it is natural to expect a change in such conditions as the base becomes more organized and systemized, it is unfortunate that the civilian personnel have fallen to their present lowly positions. I was quite impressed by their treatment as second class personnel on the base. It would seem to me that some measures could be taken to improve their lot by the provision of some better and more flexible transportation.

The P-E group is particularly sensitive to these points because they feel quite second class among the civilians. The arrangements we have at both B and C are working quite well, to my pleasant surprise, in spite of the unlikely line of responsibility. This is due in large measure to the quality of the people leading the operation and in the P-E group. The fact that the relations are much more cordial and smooth at C than at B is due to the contrasting leadership in the two areas.

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There is a feeling of competition between the two groups which, I feel, is constructive, but the balance is a critical one and could be quite a problem if not watched carefully by the military leadership. I would feel that an occasional word to the Detachment Commanders from Headquarters about the role of these civilians might go a long way to making their lives more comfortable. [] being an old hand with the project, seems quite aware of this problem and does what he can in many little ways. Colonel Sheldon, on the other hand, seemed not quite so sympathetic to the civilians. He, of course, was new at the time of our visit so this aspect may well improve with time. From my restricted point of view, and from the reactions I received from the boys in the field, both men were carrying out their jobs with considerable competence and had the respect of all.

One point in general. The busier the groups can be kept, the happier they are and the more competently they do their job--inactivity is their greatest enemy.

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